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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/761,317	01/17/2001	Yoshiyuki Tonami	36856.406	4649
7590 05/05/2004			EXAMINER	
Keating & Bennett LLP 10400 Eaton Place, Suite 312 Fairfax, VA 22030			KACKAR, RAM N	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/761,317

Applicant(s)

TONAMI ET AL.

Examiner

Ram N Kackar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 and 25-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27-32 is/are allowed.
- 6) ☒ Claim(s) 1-20, 25 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aiichirou Baigetsu (US 5080763).

Aiichirou Baigetsu discloses a process for wiring formation and disclose a feeder film partially on a substrate, a plating base overlapping the feeder film ((Fig 1B and Col 1 lines 27-31 as double layer of titanium and palladium as diffusion barrier) and forming an electroplated layer on the base film (Fig 1c and Col 1 lines 35-47). Aiichirou Baigetsu also teaches that the feeder layer whose primary purpose is providing a conductive path for electroplating to occur is removed by wet etching after that purpose is served (Col 1 lines 48-53). Since the feeder film is under the base film and also under the plated film it remains.

Aiichirou Baigetsu does not particularly disclose that the base or barrier layer is only partially formed on the feeder layer.

However, since barrier layer is required only under the gold wiring layer it would have been obvious to have barrier layer only partially formed.

Regarding the width of the plating base film, it is governed by the requirement of providing a barrier for the electroplated wiring.

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3. Claims 1-3, 5-9, 11-20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arikawa et al (JP 02139934).

Arikawa et al disclose a process for wiring formation and disclose a feeder film partially on a substrate, a plating base overlapping the feeder film (abstract – as a triple layer of titanium and platinum and gold as feeder layer barrier layer and bonding layer) and forming an electroplated layer on the base film (Fig 1 a-e and Abstract). Arikawa et al teach that the feeder layer whose primary purpose is providing a conductive path for electroplating to occur is removed by wet etching after that purpose is served (Abstract). Since the feeder film is under the base film and also under the plated film it remains.

Arikawa et al do not particularly disclose that the base or barrier layer is only partially formed on the feeder layer.

Repeating the discussion as above, since barrier layer is required only under the gold wiring layer it would have been obvious to have barrier layer only partially formed.

4. Claims 1 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuoka Takashi (JP 06260482) in view of the applicants admitted prior art (Fig 1a-1d and 2).

Matsuoka Takashi discloses a process for wiring formation (Fig 19-26) and disclose a feeder film (4), a plating base partially overlapping the feeder film (5), forming a plated wiring on the base film (8c) and a reverse tapered shape of resist pattern (6) before a lift off step so as not to allow layer 5 and 5c to join.

Matsuoka Takashi in the same way as Hirano et al, however do not disclose wet etching to remove not needed feeder film.

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This conventional method of removing the feeder film is disclosed in Applicants admitted prior art (Page 2 line 15) by wet etching.

Therefore it would have been obvious for one of ordinary skill in the art at the time invention was made to use this step to remove the feeder film by any method including wet etch as suggested by applicants prior art because of its simplicity and selectivity.

Allowable Subject Matter

5. Claims 27- 32 are allowed. The newly added limitation of the feeder film removed completely under the base film is not disclosed or fairly suggested in the prior art.

Response to Amendment

6. Applicant's arguments filed 3/8/2004 have been fully considered but they are not persuasive.

Applicant argues that in Aiichirou Baigetsu and Arikawa et al the base film is not partially overlapping the feeder film and that the two are not on the substrate.

Regarding the issue of overlapping, it should be understood that base film provides a barrier for the electroplated film and hence it would be obvious to have it overlap the feeder film partially if the electroplated layer overlaps partially. Secondly, absent claim that the base film and feeder film both contact the substrate directly, they remain on the substrate.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

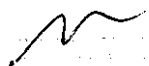
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 571 272 1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RK


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